

being very irregular in size and number. In fact they are not striæ, properly speaking, at all, but simply concentric crumplings or corrugations of the capsule.

I need not discuss here further the affinities and structure of *D. campanulata*, as I have not yet detected the species in the shales of the Quebec group. It is, however, the commonest species which occurs in the anthracitic shales (Upper Llandeilo) of the south of Scotland.

Corynoides calicularis, Nich. (?)

Numerous examples of a species of *Corynoides*, Nich., occur in a bed of black shale at Point Lévis; but their state of preservation is such as to render their specific determination impossible. They agree very well in their dimensions with *C. calicularis*, Nich. (Geological Magazine, vol. iv. p. 107, pl. vii.), which is an abundant fossil in the Upper Llandeilo shales of Dumfriesshire, Scotland. It is quite possible, however, that more perfect examples will show that the Quebec species is distinct.

Caryocaris, sp.

It is very interesting to notice the occurrence in the Point-Lévis shales of a species of the Crustacean genus *Caryocaris*, Salter, this genus being exceedingly characteristic of the corresponding formation of the Skiddaw Slates of the north of England. The state of preservation of the Quebec specimens is such as to render their specific determination hazardous and uncertain; and I prefer therefore to leave them undescribed at present. Upon the whole they closely resemble small specimens of *Caryocaris Wrightii*, Salter (Quart. Journ. Geol. Soc. vol. xix. p. 139); but it is probable that they will turn out to be distinct. None of my specimens shows more than the carapace, and that considerably crushed.

XVIII.—*Notes on Tortoises*. By Dr. J. E. GRAY, F.R.S. &c.

Testudinella Horsfieldii.

General Goldsmid has kindly presented to the British Museum a small and a larger specimen of the shell of a tortoise, the large one wanting the front of the sternum, from Rud-I-Mil, Chuh Suguti to Duruh, in Persia, which were collected on March 23rd, 1871; they evidently belong to this species, though we have not the animal to determine the number of its claws.

The two specimens are exceedingly like *Peltastes græcus* in general character, but are much more depressed, and the horny

dorsal plates are pale, with a darker edge and a dark diffused spot in the middle of the areola; the front sides of the upper part of the marginal plates are brownish; the sternum is varied with diffused black marks; the caudal marginal plate is marked with a central groove.

RHINOCEMMYS.

The species of this very natural genus may be thus divided:—

- I. *Shell black above and below; sternum with a pale (when alive red?) lateral stripe. Costals not spotted. Head black, with a streak on each side, sometimes united in front.*

1. *Rhinoclemmys melanosterna*.

Head black, with a white streak on the side of the nose and head. (Gray, P. Z. S. 1870, p. 722, fig. 1.)

Emys dorsalis, Spix (young)?

2. *Rhinoclemmys scabra*.

Head black, with a small spot on each side of the nose and of the crown, a diverging streak on each side of the head, and a round spot on the occiput. (Gray, *l. c.* fig. 2.)

3. *Rhinoclemmys lunata*.

Head black, with a spot on each side of the nose and occiput, and a streak on each side of the head, united across the forehead. (Gray, *l. c.* fig. 3.)

- II. *Shell blackish above and below; sternum with pale lateral stripes, with a spot on each side of the nose and numerous longitudinal stripes on the side of the crown.*

4. *Rhinoclemmys callocephala*.

Geoclemmys callocephala, Gray, P. Z. S. 1863, p. 254, fig. (head); Suppl. Cat. Shield Rept. p. 23, fig. 10 (head).

Hab. Tropical America.

- III. *Shell olive above, with a pale spot in the centre of the areola of each costal, surrounded by pale rings in the young; beneath black, with a pale margin.*

5. *Rhinoclemmys frontalis*, n. sp.

Head dark olive, nose with a narrow central streak above and a narrow streak on the lateral margin extending to over the orbits.

Hab. Tropical America.

An adult specimen was purchased from the Zoological Society in the year 1864.

Head olive, with a narrow longitudinal central streak on the upper part of the nose, a narrow white streak from the upper part of the nostrils to the front of the orbit, and a narrow white streak from the upper part of the nose, continued along the side of the crown over the orbit and the outer side of the temporal muscles to over the tympanum.

The shell olive above, with a distinct oblong, broad, pale streak over the middle of the areola of the costal plates. The sternum and underside of margin blackish, with a broad yellowish white band (perhaps bright red when alive) down each side of the sternum. There is a pale mark on the middle of each marginal plate, more distinct on the hinder plates. Under surface and side of face and neck whitish; side of neck punctulated with black.

This species has the peculiar pale spot which was previously regarded as characteristic of *Rhinoclemmys mexicana*; but it has quite a different head.

6. *Rhinoclemmys mexicana*.

Rhinoclemmys mexicana, Gray, P. Z. S. 1870, p. 659, fig. (head), 1871, p. 296, t. 28.

IV. Shell blackish, with more or less distinct pale rays; underside black, with a pale band round the margin, and pale triangular spots on the underside of the front and hinder marginal plates; nose with a central longitudinal streak; crown white-varied; sides of head with a diverging black-edged streak.

7. *Rhinoclemmys annulata*, Gray, l. c. fig. 5 (head).

Hab. Ecuador.

8. *Rhinoclemmys pulcherrima*.

I described and figured a young specimen of a freshwater tortoise in the British Museum, said to have come from Mexico, under the name of *Emys pulcherrima*, Cat. Shield Rept. p. 25, t. xxv. f. 2. The large cavity in the centre of the sternal bones, like what is found in the young *Rhinoclemmys*, and the short scarcely webbed toes make me think that it is most likely a *Rhinoclemmys*, or at least very nearly allied to it. The specimen is very young, the marginal bones being very rudimentary and only slender, half-ovate. It must be the young state of a very large species.

The alveolar surface of the jaws appears to be like that of *Rhinoclemmys*; but the colouring of the back is very different from that of any known species, and may indicate a new genus.

9. *Rhinoclemmys ventricosa*.

Shell oblong, broad, ventricose. Back swollen on the sides. *Ann. & Mag. N. Hist.* Ser. 4. Vol. xi. 10

Vertebral plates keeled, more especially the three hinder ones. Above black; under margin and sternum white, with a large black blotch occupying the greater part of the middle of each sternal shield. Sternum flat, rather convex, greatly bent up in front. Shell $7\frac{1}{2}$ inches long, $5\frac{1}{2}$ inches wide.

Hab. Tropical America (Mus. Utrecht, no. 39).

This shell was at one time taken for a specimen of *Hardella Thurgi*; but it is very unlike, and is at once known from that genus by the peculiar triangular form of the first pair of marginal plates, as in the other species of this genus. The dorsal and side of marginal plates have a more or less dark spot in the centre of the areola.

Emys Fraseri, n. sp.

Shell olive, minutely darker-spotted; underneath darker, black-varied. Front legs with a series of four or five large plates on the outer edge, and with two larger plates on the upper part of the outer side of the front legs. Jaws strong, with a rather broad alveolar surface.

Hab. Lake Tetzara, Algiers. Shell 8 inches long.

This species has much the appearance of *Eryma laticeps*, with which it has been confounded; but the head is much longer, and the alveolar surface of the two jaws narrower. It agrees with *Emys caspica* in the shape and proportions of its head; but the alveolar surface of the jaws is much wider.

I do not know if *Emys caspica* is also found in Algiers; but we have in the British Museum four very young Terrapins (one brought by E. Doubleday, one by Canon Tristram, and two by Mr. Fraser) from that country, which have a red stripe on each costal plate, and a black sternum, like the young *Emys caspica*. Perhaps this character is common to the young of the two species. One of these I have called *Emys Fraseri* in the 'Suppl. Cat. Shield Rept.' p. 36.

CHRYSEMYS.

We have in the museum three distinct forms of this genus, which in a large series do not appear to pass into each other, and which have special localities.

1. *Chrysemys picta*.

Sternum one-coloured, pale edge of the front discal plate broad; lateral angles of the second, third, and fourth vertebral plates anterior; marginal plates with a central spot and concentric rings above, and a yellow spot beneath.

Hab. North America, Eastern States.

2. *Chrysemys pulchra*, n. sp.

Sternum with a large central blotch sinuated on the sides; pale edge to all the discal plates narrow, uniform; the outer angle of the vertebral plates in the middle of their margin; the marginal plates with a small central marginal spot and two or three interrupted pale rings above, and a large spot and pale ring, with a broad black edge, beneath.

Hab. North America, Mississippi (*Brandt*).

The specimens in the museum have been called *Emys oregoniensis* (*Fitzinger*) by *Brandt*; but they are not *E. oregoniensis* of *Harlan*, which certainly is what I previously called *C. Bellii*. They may be one of the four species that *Agassiz* names but does not characterize.

3. *Chrysemys Bellii*.

Sternum with a blotch in the centre, which is longest over the suture of the plates; the yellow edge of the discal plates narrow, uniform; the outer angles of the vertebral plates in the middle of the lateral margin; marginal plates with a pale edge, and divided into halves by a pale cross band; costal plates with a simple or forked subcentral pale cross band.

Emys Bellii, *Gray*, *Syn. Rept.*

Emys oregoniensis, *Harlan*, t. 31: *Holbrook*, t. 16.

Young. *Actinemys marmorata*, *Lord*.

Hab. West coast of North America; British Columbia.

Trachemys lineata, n. sp.

This species is very like *T. Holbrookii*; but the pale markings of the vertebral shields are quite different, they being elongate and separate from each other—the lines of the different plates nearly meeting together, forming a series of continuous, more or less bent, lines on each side of the very narrow central line; the black spots on the sternum are large and solid.

Hab. North America.

There is a young specimen in the British Museum with fine, slender, obscure markings on the vertebral plates, and numerous regular black spots with pale centre on the sternum. This specimen is somewhat like the young specimen figured by *Agassiz* (*Contrib.* t. 3. fig. 9) as *T. elegans*; but it is also like the young specimen he has figured as *T. rugosa* (t. 16. fig. 4), but perhaps more like the former.

Trachemys lineata is at once known from *T. Holbrookii* by the slender lines on the vertebral plates. In the other species of the genus the pale and dark lines are in more or less oblong rings on each side of the vertebral plate, peculiar and complete

in each plate. There is no doubt that the lines in *T. lineata* are a modification of this form: but the ends of the loops do not exist; for they would be out of the margin of the plate.

Callichelys concinna, n. sp.

Head elongate, chin convex. Shell very ventricose, longitudinally rugose on the costal plates; brownish olive, with a roundish, dark, solid spot on the hinder angle of the fourth costal, and on the suture of each marginal plate both above and below.

Hab. San Mateo, Tehuantepec: freshwater lagoons.

Length of shell 12 or 11½ inches.

This species is very like *Callichelys ornata*; but the head is longer, and neither of the two specimens has any dark areolar spot on the hinder edge of the dorsal plates, and the spots on the margin are solid and not ringed. The upper jaw is notched in front. The shell is ventricose like *Pseudemys ventricosa*, but quite differently marked.

Damonia Reevesii. (Hairy Tortoise.)

Dr. William Lockhart in 1865 presented to the museum a young freshwater tortoise, which is closely covered with a long, simple, filiform species of *Conferva*, from the Kiu-Kiang Yangtse.

These tortoises have excited considerable interest from their having been figured by the Chinese in their books and on their paper-hangings, and have been regarded by some naturalists as a very peculiar animal,—in fact a hairy reptile. They are figured on the titlepage of Temminck and Schlegel's 'Fauna Japonica;' but they are only a freshwater tortoise or terrapin, with a species of simple *Conferva* parasitic on their backs. They are collected and much esteemed in China; and an account of them has been reprinted from Cooper's travels in a former volume of this Journal (1871, vol. viii. p. 72).

I have abstained from describing this species, in the hope that I might obtain a more fully developed specimen; but it is of little consequence, as the characters of the genera do not alter during age, though the species modifies its form; but the rules of these modifications are well understood, and the young animal shows the markings of the head more distinctly. I have no doubt that it is a very young state of a tortoise which the late Mr. John Reeves brought from China many years ago, and which I figured in the 'Illustrations of Indian Zoology' under the name of *Emys Reevesii*. It is now called *Damonia Reevesii*. We at first only received specimens about 3 inches long; but now they are brought over nearly as large again.

The specimen we received from Dr. Lockhart is $1\frac{3}{4}$ inch long. The head is olive, with a short dark-edged white streak from the middle of the hinder edge of the eye, and from the upper hinder edge of the eye a longer dark-edged white streak, which is forked behind; the upper branch extends along the side of the neck, and the lower one over the tympanum; on the other side of the head the upper line is interrupted and broken into three parts.

Dumerilia madagascariensis.

The British Museum has just received the skeleton of an adult freshwater tortoise from Anuavandra (on the west coast of Madagascar), which has been named *Dumerilia madagascariensis* by Grandidier. It has been arranged with *Pelomedusa*. It belongs to the tribe *Peltocephalina* of the family Peltocephalidæ, which is essentially a South-American family, this genus being the only exception. It chiefly differs from the genus *Peltocephalus* in having, according to M. Grandidier (for, of course, they are not to be seen in the skeleton), two short beards on the chin, which are entirely wanting in that genus, and two series of oblique lunate shields on the outer surface of the tail. The alveolar surface of the upper jaw is broad, with an angular ridge near and parallel to the sharply acute outer margin. The alveolar surface of the lower jaw is narrow in front, much broader behind, with a rather convex ridge, becoming broader behind, occupying a great part of its surface, and with a groove parallel and quite close to the outer edge.

The head is like that of *Peltocephalus*, but is more depressed and the crown flat and broad. The nose is shorter, and the lower jaw not with such an acute point; and the upper jaw is not so sinuated in front. The frontal plate is hexangular, elongated behind; and the temporal plates are large and meeting in the centre behind the frontal one, whereas in *Peltocephalus* the central plate is very large and separates the temporals to the occiput; but in other respects the two genera are very similar. It is a much smaller species, the shell of the adult animal being only 12 inches long.

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THE author says, "This book . . . is written for amateurs who, like myself, enjoy passing their leisure hours among rocks, old castles, old authors, and the wild flowers of strange wayside places. It does